Health Programme Evaluation

Guiding Principles

WORLD HEALTH ORGANIZATION

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Health Programme Evaluation

Guiding Principles for its Application in the Managerial Process for National Health Development

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Executive Summary

1. *The purpose of evaluation is to improve health programmes and the health infrastructure for delivering them and to guide the allocation of resources in current and future programmes.* Evaluation is a systematic way of learning from experience and using the lessons learned to improve current activities and promote better planning by careful selection of alternatives for future action. It should thus be a continuing process aimed at rendering health activities more relevant, more efficient, and more effective. Its application calls for an open mind capable of constructive criticism in order to lead to sound judgement.

2. *Health programme evaluation is part of a broader managerial process for national health development.* This process consists of an interlinked sequence of events including policy formulation, programme formulation and budgeting, programme delivery through various services and institutions, evaluation, and reprogramming as necessary, with information support throughout. This process is well illustrated in WHO's publication on the managerial process for national health development in support of strategies for health for all by the year 2000.[1] The place of evaluation in the managerial process for national health development is illustrated in Fig. 1 (see page 13 below).

3. *The responsibility for evaluation* devolves on the individuals and groups who are responsible for the development and application of the managerial process for national health development in the country concerned.

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[1] *Managerial process for national health development. Guiding principles,* Geneva, World Health Organization, 1981 ("Health for All" Series, No. 5).

4. *Indicators* are used in the evaluation process. These are variables which help to measure changes. *Criteria* are also used. These are standards by which actions are measured. Where no suitable indicators or criteria are available, *pertinent questions* should be asked concerning the activity to be evaluated.

5. Evaluation has to be supported by valid, relevant and sensitive *information.*

6. The *evaluation process* is intended for use in a flexible manner and must be adapted to the circumstances in which it is to be used. It consists of the following components:

— Specify particular subject for evaluation

— Ensure information support

— Verify relevance

— Assess adequacy

— Review progress

— Assess efficiency

— Assess effectiveness

— Assess impact

— Draw conclusions and formulate proposals for future action.

7. The table on page 27 illustrates the application of the evaluation process in the course of applying the various components of the managerial process for national health development. (The first two components listed in the previous paragraph—*specify particular subject for evaluation* and *ensure information support*—form a part of all others.)

8. *The frequency* with which the various components mentioned in paragraph 6 above can be applied will vary, ranging

from relatively short intervals for the assessment of progress and efficiency to much longer intervals for the assessment of effectiveness and impact.

9. The more detailed guiding principles that follow are a first step towards better integration of evaluation into the managerial process for national health development.

10. It should be understood that these guiding principles for evaluation are, of necessity, general in nature, since they are meant to meet the requirements of all Member States, in all fields of public health. Yet they endeavour to state principles and to outline practical steps in a manner applicable to diversified national and public health fields.

I. Introduction

1. In 1978, at the request of Member States, WHO prepared provisional guidelines for health programme evaluation for use both by countries for their programmes and activities, and by WHO for its collaborative programmes. These general guidelines, which were endorsed by the Thirty-first World Health Assembly, have been adapted in the text that follows with a view to integrating evaluation into the overall managerial process for national health development.

2. Evaluation, in the context of that managerial process, should be a continuing process aimed mainly at correcting and improving actions in order to render health activities more relevant, more efficient and more effective. In this perspective *evaluation calls for an open mind capable of constructive criticism.* It further requires willingness to communicate freely with professional peers and other persons or groups concerned at various policy and operational levels of health systems as well as other related social and economic systems, whether national or international.

3. Evaluation implies judgement based on careful assessment and critical appraisal of given situations, which should lead to drawing sensible conclusions and making useful *proposals for future action.* It should not be seen as "pronouncing a sentence" in a judicial sense. The judgement has to be based on valid, relevant and sensitive information that is readily and easily available and that is provided to all those who need it.

4. The process outlined in these guiding principles should therefore be regarded as a model to provide a systematic basis for evaluation. The use of such a model should help to *free the mind to concentrate on the judgement required.*

5. It should be noted that the *guiding principles* are—as the words imply—intended *for flexible use,* and should not be considered as a formal manual. The process of evaluation requires adaptation of these guiding principles to each specific situation and would suffer in its usefulness if too rigid a system were proposed. It should also be noted that the guiding principles that follow are a first step towards better integration of the evaluation process into the overall managerial process.

II. General Principles

Purpose of evaluation

6. Evaluation is a systematic way of learning from experience and using the lessons learned to improve current activities and promote better planning by careful selection of alternatives for future action. This involves a critical analysis of different aspects of the development and implementation of a programme and the activities that constitute the programme, its relevance, its formulation, its efficiency and effectiveness, its costs and its acceptance by all parties involved.

7. Thus, the purpose of evaluation in health development is to improve health programmes and the services for delivering them, and to guide the allocation of human and financial resources in current and future programmes and services. It should be used constructively and not for the justification of past actions or merely to identify their inadequacies. It is essential to perceive evaluation as a decision-oriented tool, and to link the evaluation process closely with decision-making, whether at the operational or the policy level. The very process of carrying out an evaluation can be just as important as the conclusions drawn, since involvement in the process itself often induces a better understanding of the activities being evaluated, and a more constructive approach to their implementation and to any future action required.

Constraints of evaluation

8. Evaluation, difficult in any field, presents particular problems in health work owing to the very nature of the activities, which often do not lend themselves easily to the measurement of what has been attained against predetermined, *quantified objectives.* It is therefore often unavoidable to apply *qualitative judgement,* supported, wherever possible, by reliable, *quantified information.* Account has to be taken of the intricate interrelation-

ships between the health and other social and economic sectors. Changes in a health situation are often brought about by elements outside the health sector, making evaluation, particularly of effectiveness and impact, even more difficult. This accentuates the need to define reliable and *sensitive indicators* for identifying changes in health status or in the improvement of health care delivery. The problems related to the collection of information for these indicators have repercussions on the feasibility of their use.[1]

9. Another constraint that is often encountered is a certain in-built resistance in principle to accepting evaluation and its results as a valid management tool. Self-defence often leads to rejection; it is not difficult to prove that an evaluation process was not "scientific" enough to provide a "sound" basis for making programme decisions, or to discredit the evaluation results by challenging the validity of certain criteria used.

Place of evaluation in the health development process

10. The purpose of the managerial process for national health development is to build up the health system in a rational and systematic way. Health programme evaluation is part of the managerial process for national health development, as described in the volume already mentioned.[2] The diagram opposite (see Fig. 1) illustrates the place of evaluation in the overall managerial process.

11. In order to carry out evaluation as part of the managerial process, it has to be planned for when working out that process in each country; for example, evaluation of broad programming

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[1] For more details on indicators and the related question of information collection, see: *Development of indicators for monitoring progress towards health for all by the year 2000,* Geneva, World Health Organization, 1981 ("Health for All" Series, No. 4).

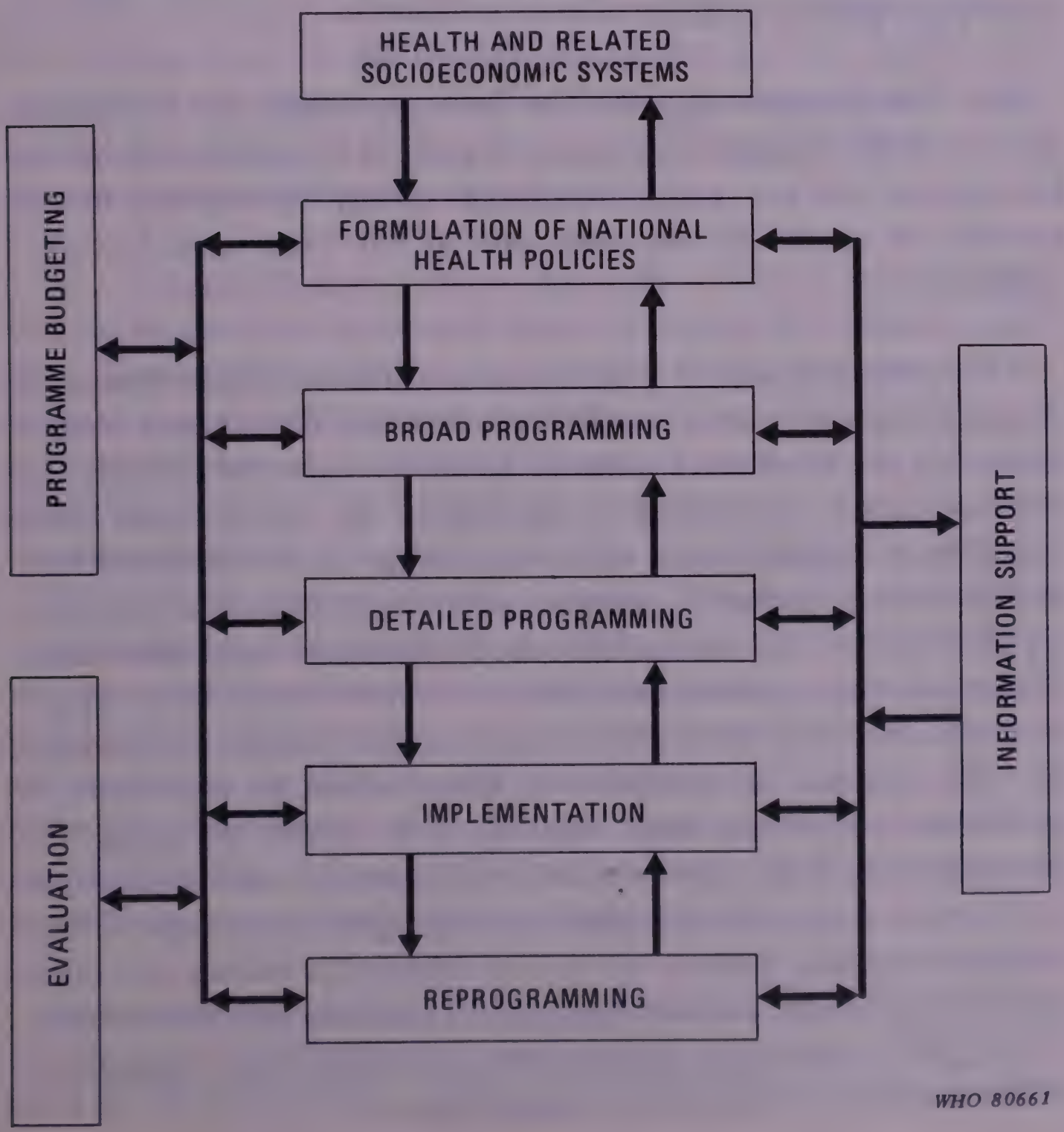
[2] *Managerial process for national health development. Guiding principles,* Geneva, World Health Organization, 1981 ("Health for All" Series, No. 5).

has to be taken into account before detailed programming is initiated.

12. There is a great variety of national health systems. Thus, national health policies vary according to political, economic and social systems. Most countries have plans to develop their health

Framework for evaluation

FIG. 1
MANAGERIAL PROCESS FOR NATIONAL HEALTH DEVELOPMENT



systems, some more formal than others. Some countries have health programmes with well-defined objectives and targets. All have various types of health services and institutions as well as different types of professional and other health workers.

13. Governments are taking an increased interest in health development. In some countries the government provides all health care. In others, various types of social security and health insurance schemes exist, sometimes alongside government health care and sometimes with their own health institutions. In addition, in some countries health care is provided by voluntary agencies and by the private sector.

14. The process suggested in these guidelines for evaluation as part of the managerial process is general in nature and has to be adapted for use within the large variety of national health systems. A model of one such system has been used for convenience.

15. Such a model of a government-directed health system of a medium-sized country would include local, district and central levels. At the local level some or all of the essential elements of primary health care would be provided.[1] At district level there would be a district health office to manage all the health affairs of the district, a district hospital with an outpatient dispensary, a public health laboratory, and schools for nurses and auxiliaries. Sometimes the environmental health services would be managed from the district health office; sometimes they would be managed by other sectors. At central level there would be a ministry of health or equivalent body dealing with health planning, the management of the government health services and institutions and certain environmental services, large general and specialized hospitals, medical schools, as well as schools for nurses and other professional health workers, and central public health laboratories.

[1] *Alma-Ata 1978. Primary health care,* Geneva, World Health Organization, 1978 ("Health for All" Series, No. 1), page 4, para. 3.

16. Health systems are undergoing profound change in many countries. Numerous countries have introduced the managerial process for national health development or an equivalent process, and this will no doubt facilitate evaluation once programmes have been well defined. Other countries will have to define in other ways programmes and their component parts that are to be evaluated. The establishment and management of health services and institutions for programme implementation are often of particular importance, calling for specific kinds of evaluation.

Responsibility for evaluation

17. As for the *responsibility for evaluation,* the principle whereby evaluation should be conducted as an integral part of the various steps of the overall managerial process implies that *individuals and groups responsible for the development and application of that process at the various policy and operational levels also carry responsibility for its evaluation.*

18. Thus, to revert to the model outlined above, responsibility will lie at the local level with those in charge of primary health care. Communities themselves will also carry responsibility for evaluating the appropriateness of the services they receive and the satisfaction of community members with the health care available to them. At district level, responsibility will be with directors of district hospitals, public health laboratories, environmental health services, training schools and, finally, the district health officer; at central level, it will be with the directors of the various hospitals, deans of medical and nursing schools, central public health laboratories, programme directors in the ministry of health, the director-general of health services in the ministry of health, the minister of health, and, possibly, the state controller, the minister of finance, the parliament or other governmental institutions, as appropriate in each country.

19. An important part of the responsibility at each level is to ensure that other individuals and groups concerned at the same level or at other levels, whether more centrally or more periph-

erally located, are in a position to contribute to the evaluation, are kept informed of its results, and are requested to take appropriate action. This is essential in order to initiate or maintain the dialogues required among these persons.

20. As some of the evaluation issues might be of a sensitive or controversial nature, the evaluation activity as well as its findings should be shared at regular intervals by *all* involved in the process. To facilitate this task a current record should be maintained of the important decisions and options, of the reasons for selecting one of several courses of action, and of the actual events and intermediate results as they occur.

Components of evaluation process—main features

21. The following are the main features of the components of the evaluation process:

(1) *Relevance* relates to the rationale for adopting health policies in terms of their response to social and economic policy; and to having programmes, activities, services or institutions, in terms of their *response to essential human needs and social and health policies and priorities.*

(2) *Adequacy* implies that *sufficient attention* has been paid to *certain previously determined courses* of action, such as the various issues to be considered during broad programming.

(3) *Progress* is concerned with the comparison of actual with scheduled activities, the identification of reasons for achievements or shortcomings, and indications for remedies for any shortcomings. The purpose of a progress review is to facilitate the *monitoring and operational control of ongoing activities.* In this context monitoring is the day-to-day follow-up of an activity during its implementation to ensure that operations are proceeding as planned and are on schedule. It keeps track of ongoing activities, milestones achieved, personnel matters, supplies and equipment, and money spent in relation to budgets allocated.

(4) *Efficiency* is an expression of the relationships between *the results obtained* from a health programme or activity *and the efforts expended* in terms of human, financial and other resources, health processes and technology, and time. The assessment of efficiency is aimed at improving implementation, and adds to the review of progress by taking account of the results of monitoring. Under this heading, a check is also made on such matters as the appropriateness of existing plans of operations, work schedules, methods applied, manpower used, and the adequacy and use of financial resources, with a view to improving them, if necessary, at the least cost.

(5) *Effectiveness* is an expression of the desired effect of a programme, service, institution or support activity in reducing a health problem or improving an unsatisfactory health situation. Thus, effectiveness measures the *degree of attainment* of the predetermined objectives and targets of the programme, service or institution. The assessment of effectiveness is aimed at improving programme formulation or the functions and structure of health services and institutions through analysis of the extent of attainment of their objectives. Where feasible, the extent of attainment should be quantified. Where this is not feasible, a qualitative analysis of the relevance and usefulness of the achievement has to be performed, however subjective and impressionistic such an analysis may be, until a more precise way of measuring is developed. The evaluation of effectiveness should also include an assessment of the satisfaction or dissatisfaction expressed by the community concerned regarding the effects of the programme, service or institution. If possible, cost-effectiveness should be assessed and a cost-benefit analysis made.

(6) *Impact* is an expression of the *overall* effect of a programme, service or institution on *health and related socio-economic development.* The assessment of impact is thus aimed at identifying any necessary change in the direction of health

programmes so as to increase their contribution to overall health and socioeconomic development.

Frequency of evaluation

22. The description of these components of evaluation would be incomplete without reference to the *frequency* with which they can be considered. While evaluation is a continuing process, its results have to be summarized and reported on at given times or specified intervals. It will no doubt be found easier to summarize the assessment of progress and efficiency, say, once a year than to assess effectiveness, for which a longer time-span might be required. This results from the need to identify significant changes in the specific health situation that are indicative of a programme's effectiveness. An even longer time-span is likely to be required in relation to the assessment of impact; at least five years from the inception of a programme may be required.

Indicators and criteria for evaluation

23. Indicators and criteria are used as aids throughout the evaluation process. They can also be used as aids for planning and programming.

24. *Indicators* are variables that help to measure changes. They are evaluation tools which can measure change directly or indirectly. For example, if the objective of a programme is to train a certain number of auxiliary health personnel annually, a direct indicator for evaluation could be the number of such personnel actually trained each year. If the subject of evaluation is the result of a programme aimed at improving the level of health of a child population, it may be necessary to assess any improvement by using several indicators that could indirectly measure a change in this level. Such indicators could be the nutritional status as illustrated by weight in relation to height, the rate of immunization, learning capacity, age-specific mortality rates, disease-specific morbidity rates, and disability rates of a child population.

25. When selecting indicators, full account has to be taken of the extent to which they are valid, reliable, sensitive, and specific.

26. Validity implies that the indicator actually measures what it is supposed to measure. Reliability implies that even if the indicator is used by different people at different times and under different circumstances, the results will be the same. Sensitivity means that the indicator should be sensitive to changes in the situation or phenomenon concerned. However, indicators could be sensitive to more than one situation or phenomenon. Specificity means that the indicator reflects changes only in the situation or phenomenon concerned. For example, the infant mortality rate is a sensitive, although very crude, indicator of the level of health of a child population. It is a direct measure of death and only an indirect measure of health, but within this limitation it is both a valid and a reliable indicator. It is not specific, however, in relation to any particular health action, since its reduction can result from a large number of factors related to social and economic development, including health development, and can rarely be attributed to any one health action.

27. Health and health-related indicators, often considered in various combinations, are used in particular to assess effectiveness and impact. A vast number of indicators exists. They can be placed in groups relating to health policy, socioeconomic conditions, provision of health care, and health status. While indicators of health policy and of the provision of health care are useful mainly for assessing effectiveness, social and economic indicators and indicators of health status have to be used in the final analysis to assess impact. The following are examples of such indicators:

(1) HEALTH POLICY INDICATORS[1]

— High-level political commitment to health for all

— Allocation of adequate resources for primary health care

[1] For further explanations, see: *Development of indicators for monitoring progress towards health for all by the year 2000,* Geneva, World Health Organization, 1981 ("Health for All" Series, No. 4).

— Degree of equity of distribution of resources

— Level of community involvement in attaining health for all

— Establishment of a suitable organizational and managerial framework for the national strategy for health for all

— Practical manifestations of international political commitment to health for all

(2) SOCIAL AND ECONOMIC INDICATORS

— Rate of population increase

— Gross national product (GNP) or gross domestic product (GDP)

— Income distribution

— Work availability

— Adult literacy rate

— Adequacy of housing expressed as number of persons per room

— Per capita energy availability

(3) INDICATORS OF THE PROVISION OF HEALTH CARE

— Availability

— Physical accessibility

— Economic and cultural accessibility

— Utilization of services

— Indicators for assessing quality of care

(4) INDICATORS OF COVERAGE BY PRIMARY HEALTH CARE

— Level of "health literacy"

— Availability of safe water in the home or within short walking distance

— Adequate sanitary facilities in the home or immediate vicinity

— Access of mothers and children to local health care

— Birth attendance by trained personnel

— Percentage of children at risk immunized against the major infectious diseases of childhood

— Availability of essential drugs throughout the year

— Accessibility of referral institutions

— Ratio of population to different kinds of health worker in primary health care and at referral levels

(5) HEALTH STATUS INDICATORS

— Percentage of newborn infants with birth weight of a least 2500 g

— Percentage of children that have a weight for age that corresponds to specified norms

— Indicators of the psychosocial development of children

— Infant mortality rate

— Child mortality rate

— Under-5-year mortality rate

— Life expectancy at a given age

— Maternal mortality rate

— Disease-specific mortality rates

— Disease-specific morbidity rates

— Disability rates

— Indicators of social and mental pathology, such as rates of suicide, drug addiction, crime, juvenile delinquency, alcoholism, excessive smoking, obesity and consumption of tranquillizers

28. *Criteria* are standards by which actions are measured. Criteria may be technical or social, technical criteria being normally highly specific to programmes. For example, a technical criterion for the guarantee of the safety of drinking-water would have to be a certain technical standard for the purity of water. A social criterion for the guarantee of the continuation of the water supply could be the existence of a community organization for the maintenance of the supply.

29. The main purpose of criteria is to provoke thought leading to judgement. Such judgement can rarely be arrived at only through adding up numerical values resulting from certain quantified evaluation criteria.

30. Nevertheless, criteria for the evaluation of health programmes should be quantified wherever possible, although in practice this will not always be possible, particularly where social criteria are concerned. It is therefore often necessary to resort to an evaluation based on qualitative rather than quantitative assessment.

31. Another very important attribute of both indicators and criteria is the availability of the information required: that is, it should be possible to obtain the data required without undue difficulty. Indicators and criteria should be included in the pro-

gramme at the planning stage, so that the information requirements can be determined early on.

32. It has to be realized that there will be health activities for the evaluation of which no suitable indicators and criteria may be available. In these cases, *pertinent questions* should be asked concerning the activity to be evaluated. Answers to these questions will help to guide evaluation and will, in turn, help to define and refine indicators and criteria. For example, the following illustrative questions could be asked:

(1) Has "health for all" received endorsement as policy at the highest official level?

(2) Have mechanisms been formed or strengthened for involving people in the national strategy for health for all?

(3) How much of the GNP is spent on health, and how much of this is spent on various population groups or geographical areas, such as urban and rural areas?

(4) How much of the health budget is spent on local health care?

(5) What percentage of health expenditure in developed countries is transferred to support strategies for health for all in developing countries?

(6) Is safe water available in the home, or how far away is it available in terms of walking distance?

(7) Are there adequate sanitary facilities in the home or immediate vicinity?

(8) What proportion of children is immunized against the major infectious diseases of children?

(9) What walking or travel time is required to obtain local health care?

(10) Is childbirth attended by trained personnel?

(11) Is the nutritional status of children adequate?

(12) Do large numbers of children die during their first year of life?

(13) Is there a high proportion of elderly people?

(14) Can most adults read and write, and is there a great difference between women and men in this respect?

(15) What is the GNP per head?

Information support

33. *Evaluation has to be based on valid, relevant and sensitive information.* There is often an excess of only marginally relevant and sensitive information. Often the most needed information is not available and its collection can be extremely costly. For the above reasons an approach of high selectivity should be adopted and only that information should be collected which has been identified as being really crucial for the issue being evaluated.

34. The types of information required may include political, social, cultural, economic, environmental and administrative factors influencing the health situation as well as mortality and morbidity statistics. Any of this information may form the basis of indicators and criteria for use in the various steps of the evaluation process. The information required may also concern health and related socioeconomic policies, plans and programmes, as well as the extent, scope and use of health systems, services and institutions. Thus, the information sought may be historical, social, political, economic, scientific, technological, demographic, epidemiological, organizational, legislative, or related to inventories of resources.

35. Information collection is least costly when the information emanates from the operation of the programmes or services of a health system. The required flow of information will vary by countries, e.g., from the periphery through various administrative levels to the ministry of health, with subsequent feedback from

the centre to local health units. It may be necessary to have specific information collected in the absence of well developed health information support to the managerial process.[1] This in itself could help to strengthen such information support, including a well organized reporting system.

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[1] Methods of information collection are described in: *Development of indicators for monitoring progress towards health for all by the year 2000,* Geneva, World Health Organization, 1981 ("Health for All" Series, No. 4).

III. The process of evaluating health policies, programmes, services and institutions

The evaluation process

36. The process of evaluation consists of the following components:

— specify the particular subject for evaluation

— ensure information support

— verify relevance

— assess adequacy

— review progress

— assess efficiency

— assess effectiveness

— assess impact

— draw conclusions and formulate proposals for future action.

37. The above process is intended for *use in a flexible manner,* and must be adapted to the circumstances in which it is to be used. The table opposite illustrates the application of the process in the course of applying the various components of the managerial process for national health development.

38. Those responsible for evaluation should set the evaluation process in motion giving due consideration to the above components. The process should start at local level, moving progressively towards the central level.

COMPONENTS OF MANAGERIAL PROCESS FOR NATIONAL HEALTH DEVELOPMENT		COMPONENTS OF EVALUATION PROCESS
Policy formulation	:	Verify relevance Assess adequacy of problem definition
Broad programming	:	Verify relevance of programmes
Programme budgeting	:	Assess adequacy of formulation
Master plan of action	:	Assess adequacy of formulation
Detailed programming	:	Review progress Assess adequacy of formulation
Implementation	:	Review: progress efficiency effectiveness impact

Note:		
It should be noted that these components are usually being applied at the same time with respect to different programmes, possibly in different parts of the country and at different policy and operational levels.	:	In consequence, since the evaluation process is integral to the managerial process, its various components too are usually carried out at the same time with respect to different programmes in different parts of the country and at different policy and operational levels.

Specify the subject for evaluation

39. The specification of the particular subject for evaluation is carried out by answering the following questions:

(1) *What is to be evaluated?* That is: should the subject to be evaluated be a *programme,* e.g., maternal and child health; a *service,* e.g., water supply and sewage disposal, or the use of ambulances and other transport; a local *health service* delivering a number of programmes; or an *institution,* such as a health centre, a hospital or a training institution? Make sure that the subject is really worth evaluating in terms of its size or potential importance. It would not be justifiable to evaluate minor activities outside the broader programme, service or institution of which they form a part.

(2) *At what organizational level* or levels is the evaluation to be made?

(3) *What is the purpose of the evaluation?* Is it in support of the annual budget allocation, or of a new development plan, or for some *ad hoc* purpose?

(4) What are the constraints that could limit the possibility of evaluation or restrict its scope?

(5) What options exist for decisions to be taken in the light of the evaluation results? These could include, to give some examples: continue unchanged; modify; terminate; transfer to another administrative level; accelerate pace of implementation; amalgamate with another programme or service; reassess budget; request extrabudgetary funds; or reconsider whether implementation requires international collaboration, e.g., as part of technical cooperation among developing countries (TCDC), or with WHO or any other international or bilateral organization. The answers to the above are of particular relevance to the replanning and programming of activities.

(6) To whom should the evaluation results be reported? Possible answers could include the group or individual responsible for carrying out the related component of the managerial process or for managing the service or institution concerned. More formally it could include the local government, the district health officer and the ministry of health. In other words, evaluation results should be reported both within the group responsible for the activity concerned and to the next link in the chain of responsibility. In turn, those responsible for the next link should report back on their assessment of the evaluation results presented to them. Efforts should be made to present the results in the most economical way, avoiding costly forms of publication.

Ensure information support

40. The use of information permeates the whole of the evaluation process. It is therefore necessary to ensure adequate infor-

mation support throughout the process, so that this will not subsequently be delayed for lack of such information. The best way to ensure information support is to specify the information requirements at the planning stage. Answers to the following three questions will be of assistance in ensuring such support in *any* evaluation effort:

(1) What are the information requirements?

(2) What are the available sources of information?

(3) Is the available information adequate or is it necessary to obtain further or more precise information from additional sources, or by carrying out special studies and surveys?

41. The *information requirements* should be identified in the light of the needs of the various components of the evaluation process. For example:

(1) *Subject of evaluation*—summarize the answers to the questions in paragraph 39 above, taking account of the time-span to be covered by the evaluation.

(2) *Relevance*—specify the health policy basis in relation to social and economic policy, and programme objectives in relation to health policy.

(3) *Adequacy of problem definition*—make sure that a statement exists that defines the problem for the solution of which the process or programme is being implemented.

(4) *Adequacy of programme or project formulation*—make sure that there is a list of objectives and targets; a description of the approaches being used to attain the objectives and meet the targets; a summary of the resources involved, including personnel and budgeting and financial information; and a schedule of activities, including milestones or checkpoints and their due dates. Infer information requirements from the criteria to be used or questions to be asked.

(5) *Progress*—verify whether information is available on the use of resources. Infer information requirements from the indicators to be used or questions to be asked.

(6) *Efficiency*—identify the results of the programme or project or make sure that they can be summarized. Specify the indicators and criteria to be used or questions to be asked and infer information requirements from these.

(7) *Effectiveness*—verify the availability of information on the health problem or situation concerned before the start of the programme, at earlier stages of its implementation, and at the time of the evaluation. Infer information requirements from the indicators and criteria to be used or questions to be asked.

(8) *Impact*—verify the availability of information on the overall health and related socioeconomic situation concerned before the start of the programme, at earlier stages of its implementation, and at the time of evaluation. Select the pertinent information, and infer further information requirements from the indicators and criteria to be used or questions to be asked.

(9) *Conclusions and proposals for future action*—refer to any conclusions and proposals for action from preceding evaluation efforts.

42. The following are examples of *sources of information* which will usually be required and will be available:

— government reports on the political, economic and social situation;

— policy documents (health plans, development plans, reports concerning the overall managerial process, recent important statements by political leaders, legal documents);

— periodic reports of the ministry of health;

— epidemiological information (from official national health statistics services, reports, research findings, etc.);

— demographic information, in particular vital statistics;

— data on the resources used and activities carried out in the services and institutions;

— health programme formulation documents, and plans of action for implementing programmes or establishing institutions and services.

43. At this stage, it is wise to analyse the adequacy of available information. Where justified, a preliminary screening should be made of the data at hand to decide whether they are (*a*) usable and (*b*) sufficient, both qualitatively and quantitatively, and whether extra data should be collected. If there is a need for extra data, it has to be decided whether they can be obtained easily from available sources, or whether a special study or survey has to be carried out.

44. When information cannot easily be obtained from available sources and it has therefore been decided to carry out a *special survey,* the collection of the necessary data must be properly planned and implemented. The cost of collecting the data has to be carefully considered, because this can sometimes be very high in relation to the benefit from the survey. Wherever possible, the live collection of data—that is, directly from the people concerned—is to be preferred to collection by correspondence. Such live communications have an importance which goes beyond information-gathering and facilitates the very judgement inherent in the evaluation process.

45. In *large-scale surveys,* or with a view to reducing the costs of data collection, it may be necessary to limit the amount of data gathered, e.g., by *taking samples.* In this case, the sampling procedure has to be carefully worked out in advance to ensure the

adequacy of the samples for the information concerned. Statisticians or epidemiologists with experience of sampling methods should be consulted, because wrong samples will inevitably lead to false information, making valid judgement impossible.

46. At this stage, it is necessary to plan the implementation of the survey in detail, including the types and number of staff required, the duration of the data-gathering and analysis periods, any travel required, data processing requirements, time schedules for completion of the survey, and the budgetary implications. The procedure for information analysis should also be planned in advance, and the full involvement sought of those engaged in the implementation of the programme or project being studied. For surveys of long duration, periodic reports may be required from those involved in order to monitor the implementation of the fact-finding procedures.

47. Finally, if possible, a pilot run should be made before any large-scale survey is carried out in full.

48. Before the information assembled is actually used, it should be reviewed in relation to its pertinence for the steps in the evaluation process concerned. Wherever justified, it should be presented in tabular or graphic form in order to facilitate its systematic analysis.

Verify relevance

49. The consideration of *relevance* relates to the rationale for having the health policies, programmes, activities, services and institutions concerned. The following questions can be asked:

(1) Are the health policies relevant to the country's overall social and economic policies?

(2) Are the programmes justified in social terms, i.e., are they aimed at giving effect to accepted health policies for solving problems of high social relevance?

(3) Are the activities of the programme clearly related to its objectives?

(4) Are the services and institutions concerned clearly related to the attainment of defined national health goals or to the implementation of defined priority health programmes?

50. The following list of criteria may be of use for further assessing relevance. These criteria should be used selectively.

(1) *There is a strong basis for the programme, service or institution...*

(a) because of its social relevance, e.g.:

— it is directed towards defined national health goals

— it contributes directly and significantly to the improvement of the health of the population concerned

— it uses methods that can be applied and *afforded now* by the countries concerned

— it responds to well-defined community needs

(b) because the effect of not having the programme, service or institution would be:

— to cause serious aggravation of the problem

— that no other programme, service or institution would provide an alternative service to deal with the problem

— other (specify)

(2) *There are strong reasons for ending the programme, service or institution because:*

— the problem has ceased to be of *major* public health importance or it is recognized that the programme is

yielding greatly diminished returns in relation to the efforts being expended

— other (specify)

If the results of the evaluation show that the policy, programme, service or institution is not relevant, recommend modification or, if necessary, termination

Assess adequacy

51. The *assessment of adequacy* takes place with respect both to policy formulation and to programme formulation. In relation to policy formulation it includes assessing whether problems have been clearly defined; and, during programme formulation, whether the programmes have been adequately formulated.

52. *Assess whether problems have been clearly defined,* e.g., the extent and severity of a disease, the populations affected or at high risk, the population to be covered by a service, the manpower problem for whose solution a training institution is being used. The list of criteria below may be of help for such an assessment. It should be used selectively and does not pretend to be exhaustive.

53. *The problem is of major public health importance*

(1) *Severity*

— leads to high mortality rate

— leads to high morbidity rate

— leads to high disability rate

— causes impairment of learning or work potential

— causes impairment of growth and development

— endangers fetal life

— other (specify)

(2) *Frequency of occurrence*

— rarely

— occasionally

— frequently

— always

(3) *Related implications*

— has adverse political implications

— has adverse social or economic implications

— has adverse demographic implications

— other (specify)

(4) *Distribution of problem*

— nationwide

— regional or provincial

— local

(5) *Inequity of health resources*

— there is an inequitable distribution of health resources, for example, a disproportionate share of health care resources (money, manpower, equipment, facilities, etc.)

— other (specify)

If the results of the evaluation of policy formulation show that the health problems have not been well defined, recommend redefinition of problems

54. *Review if programmes have been properly formulated.* Do they have long-term, medium-term or short-term objectives and targets? Have these been clearly defined? Are the organizational and administrative responsibilities clearly defined? What approaches have been adopted for attaining the objectives, e.g., if the objective is to improve child health, has adequate attention been paid to appropriate nutrition, immunization, control of infections, and treatment of diseases and injuries? What methods and equipment have been selected and how were they selected? How have the programme components been assigned throughout the country? Has due consideration been given to manpower and financial requirements?

55. The following criteria can be used as a check-list to help identify the above:

(1) adequate provision has been made for the planning, management and evaluation of the programme, and the information needed has been specified;

(2) the objectives have been clearly stated, as far as possible in measurable terms;

(3) a detailed plan of action with a time schedule (if applicable) has been established for the attainment of these objectives;

(4) alternative approaches and methods were considered and it did not seem possible to arrive at a more economical approach to attain the same objectives;

(5) indicators and criteria have been selected for subsequent evaluation of the programme.

If the results of the evaluation show that the programme has not been well formulated, recommend reformulation

56. The review of progress consists of an analysis of the efforts made and resources used as well as of the degree to which actual implementation complies with the planned implementation. The following unconnected examples are given by way of illustration:

Review progress

— Compare the number of health personnel actually trained in a training institution in the course of a given period with the numbers planned.

— Compare the actual population served by an institution with the population planned to be served (appropriate criteria have to be established to determine what is meant by a population being "served", such as accessibility and degree of utilization of the service).

— Compare the number of households supplied with piped drinking-water at a given date with the number planned to be supplied at that date.

— Have equipment and supplies for the establishment of an institution arrived in time, and is there adequate provision for maintenance and resupply?

— Have important events been achieved on schedule, e.g., the completion of the immunization of a given number of children against certain infectious diseases?

— Compare funds spent with those budgeted.

Only significant exceptions to the planned progress should be noted and, if possible, reasons should be given for significant deviation from the planned action.

Assess efficiency

57. The assessment of efficiency consists of an analysis of the results obtained in relation to the efforts made and the resources

used. The question is: could these results have been obtained in better and more economical ways? A differentiation should be made between *technical* efficiency and *cost* efficiency. The following issues should be raised:

(1) *Operational level*—assess whether the activities are being conducted at the right operational level, e.g., local, district or central.

(2) *Methods*—analyse whether the methods employed are proving to be useful for the solution of the problem.

(3) *Manpower*—analyse whether the best combination of available manpower is being deployed in sufficient numbers for the solution of the problem. Analyse the efficiency of the manpower in terms of skill and effort in comparison with what could be expected.

(4) *Finances*—judge the adequacy of the financial resources made available for the implementation of the programme or the management of the service or institution. Make a cost analysis to assess how economically the results have been achieved.

(5) *Facilities*—review the suitability of the geographical location of buildings and the adequacy of buildings, vehicles, equipment and supplies, where applicable.

(6) *Collaboration*—describe the results of collaboration with other social or economic sectors and institutions, voluntary agencies, bilateral and multilateral agencies, etc.

(7) *Managerial control*—analyse factors not mentioned above such as the degree of adequacy of the time allotted for the implementation of the activities, the correctness of the sequence of activities, the appropriateness and timeliness of logistic support, and the degree to which major activity results were

being reached. Indicate problems encountered and describe corrective action envisaged or taken.

(8) *Cost-efficiency*—this is an important aspect of the analysis of any programme, service or institution.

58. Some examples follow by way of illustration. If the objective of a programme is to train a given number of auxiliary nurse/midwives each year, the learning methods, the types and numbers of faculty, the money invested in setting up training establishments and in running them, the suitability of the buildings and learning equipment and material, collaboration with the general education system, the time allotted to various components of the learning process and the sequence in which these components are being presented all have to be taken into consideration. Appropriate educational criteria would have to be used, for example, to assess the usefulness of the learning methods.

59. To give another example, if spraying indoors with residual insecticides has been selected as the control measure to reduce the incidence of malaria, the efficiency of the programme could be measured in terms of the degree to which houses are being *correctly sprayed.* The criteria used for this assessment are that the application of the insecticide has been made before the malaria transmission season; the insecticide has been applied at the rate of 2 g per m^2; at least 95% of the inner surfaces of the houses treated have been properly sprayed; and 80% of all houses have been correctly sprayed.

60. Another example relates to water supply. If the programme objective is to provide potable water for the total population, a social criterion for efficiency might be the ability of the population to establish and maintain this water supply by methods it can afford. Technical criteria would have to be used to assess whether the water supply is, in fact, safe.

61. The following example concerns an immunization programme. Suppose the objective of a programme is to reduce the incidence of certain infectious diseases of childhood. If these diseases can be controlled by the application of potent vaccines to a high proportion of the population at risk, the efficiency of the programme can be assessed by the potency of the vaccine employed at the time of its application and, in the final analysis, by the percentage of children at risk properly immunized. Technical criteria are required to assess the immunization status of the children concerned. If it is not feasible to perform an assessment of immunization status, at least certain other criteria have to be applied, such as the number of children registered as having received the required doses of the vaccines concerned.

62. One measure of the efficiency of a health service is the correct use of its component parts; for example, the use by the population of a health centre for preventive and simple curative services and use of the appropriate hospital only on referral from the health centre; another example could be the use of the most appropriate hospital in that it is nearest to the community concerned and provides clinical services at the right degree of specialization.

63. The following are a number of examples of the assessment of the efficiency of institutions:

(1) *Health centres*—the comparison of the number of immunizations provided in a given period as compared with an accepted norm; the coordination between an immunization time schedule and the vaccine supply; the number of women provided with the required antenatal examinations over a given period of time as compared with an accepted norm.

(2) *Hospitals*—the number of outpatients cared for per health worker. For inpatient care, the ratio of staff to beds; the percentage of bed occupancy; the average duration of stay by clinical department; the bed turnover rate; the number of in-

patient days for a given size of population; the number and types of laboratory or radiodiagnostic examinations for a given size of population; medical audit, e.g., the comparison with certain norms of the statistics for the care of a given condition, such as average length and frequency distribution of stay, types of care provided, results of care, the number of patients returning for the same condition, and the frequency of their return.

64. The *cost-efficiency of institutions* should be measured in terms of the amount of service provided in relation to the costs. For example, the efficiency of including a trained nurse/midwife in the staff of a health centre without obstetric beds has to be measured in terms of the cost divided by the number of women provided by her with the accepted range of antenatal and postnatal care; the efficiency of having such a midwife for deliveries has to be measured in terms of the cost divided by the number of deliveries. The comparison of the cost-efficiency of different hospitals has to be assessed in terms of the costs divided by the total number of inpatients, but great care has to be taken in arriving at conclusions in order to take into account variations between hospitals in the provision of different kinds of diagnostic and therapeutic inpatient and outpatient care. It is often more fruitful to assess the cost-efficiency of the *same* institution over a number of given periods of time.

65. *Quality of care* is an important component of efficiency, but is usually very difficult to assess objectively. In all the above, it has been taken into account only in terms of medical audit in hospitals.

Assess effectiveness

66. The *assessment of effectiveness* should be mainly an analysis of the attainment of objectives, expressed, if possible, in terms of health problem *reduction* or an improvement of an unsatisfactory health situation. The definition of targets and output indicators during programme planning will greatly facilitate subsequent evaluation of effectiveness.

67. The following are a number of examples. If the objective of a programme in a country is to improve child nutrition, the output indicator could be the number of children whose nutritional status has improved following the introduction of the programme. If one of the targets set was to reach a satisfactory nutritional status for all preschool children by a certain date, the effectiveness of the programme could be assessed in terms of the percentage of preschool children with an adequate nutritional status at that date. The indicators for assessment would be those that could be applied in practice in the country concerned for assessing nutritional status.

68. To give a further example, if the objective of a programme is to reduce the incidence of malaria, the effectiveness of the programme will be measured in terms of the annual incidence at the time of evaluation as compared with the annual incidence at the beginning of the programme. The technical criteria required are those used for measuring the incidence of malaria.

69. To revert to the example used in relation to the efficiency of a programme of immunization against certain infectious diseases of childhood (see paragraph 61 above), the ultimate measure of effectiveness will be the reduction in mortality and morbidity rates for these diseases.

70. In conformity with the above, *assess the extent to which objectives appear to be attained and targets met.* Identify, wherever applicable, reasons for failure to attain objectives or meet targets, and review the adequacy of any corrective action taken. Special attention should be given to problems encountered for which solutions are still sought. Analyse to the greatest extent possible the effect of the programme or project in attaining the objectives of the broader programme of which it forms a part. For example, if the objective of a programme for training midwives has been attained, has the natal and infant care been improved as measured by the increase in the number of child-bearing

women being attended by midwives and ultimately by a reduction in maternal and perinatal mortality? If the target for village water supply has been reached, has this helped to lead to a reduction in the incidence of diarrhoeal diseases? In addition, assess as far as possible whether the results of the programme have met the expectations of the community concerned and its leaders, whether local or national.

Assess impact

71. The *assessment of impact* is the most difficult step in the evaluation process. The question that has to be asked is: even if the objectives of the programme are being attained, has the result been an improvement in the overall health and socioeconomic situation and in the quality of life? For example, the provision of water supply could have a beneficial effect on the health of the country in many ways, yet it could have a detrimental effect if carried out alone without an accompanying drainage system. The control of specific infectious diseases in infancy could be considered a success when infant mortality is reduced, but the corresponding increase in the number of children in the community, if unaccompanied by appropriate agricultural development and nutritional programmes, could lead to problems of malnutrition.

Draw conclusions and formulate proposals for future action

72. In order to draw conclusions, *summarize the objectives, approaches, methods and results of the programme.* For services and institutions, show the relationship between, on the one hand, the functions they are performing and the approaches and methods being used to fulfil these functions, and on the other hand, the programmes they are intended to deliver, and the results of the performance of the functions.

73. Summarize the supporting information which leads you to conclusions concerning policy and programme relevance, problem definition, the adequacy of programme formulation, the progress being made, the efficiency of implementation, the effectiveness of the programme, and its overall impact. Indicate perceived achievements as well as major problems encountered.

74. When preparing this summary, make sure that the comments of all those involved in the evaluation process are taken into account and are fully discussed with the individual responsible for the programme, service or institution being evaluated.

75. *Draw conclusions* in the light of the information summarized as above. These conclusions should provide a basis for modifying programmes, or reprogramming if necessary. *Formulate proposals for future action* as appropriate, e.g., to redefine problems which were improperly presented; to redesign programmes inadequately formulated or to accelerate their progress; to redefine the functions and structures of an institution or service; to increase the budget, etc. (for examples of the types of decisions that have to be taken, see paragraph 39(5) above). Suggest whether the programme or project should continue, be modified or be terminated. Specify any necessary modification to the objectives, targets, methods and techniques applied, as well as to human and financial resources to be deployed and the time required for the intended change. Propose options for choice of modification. These proposals should be included in reports to be addressed to the bodies or individuals mentioned in paragraph 39(6) above.

IV. The evaluation of the managerial process for national health development

76. From time to time, national health authorities may wish to evaluate the managerial process for national health development that they are using. Their managerial process would thus become the subject for evaluation. In the absence at this stage of suitable indicators and criteria for such evaluation, it is suggested that use be made of pertinent questions. The following illustrates how the evaluation process might be applied to evaluate the country's managerial process, relying on the use of such questions.

77. The particular subject for evaluation could be the extent to which the managerial process is achieving its purpose, if at all. Another particular subject could be the cost of the process in relation to its effectiveness or the adequacy of a particular component of the process, for example, programme budgeting.

Specify the subject for evaluation

78. A question to be asked is if the managerial process is relevant to the political, social and economic situation, and to the overall socioeconomic planning process in the country. This might include comparing the planning methods used in the managerial process on the one hand with those used for planning socio-economic development in general on the other hand, to see if the two are compatible. It might also include comparing the data envisaged for submitting health programme proposals to the government with the deadline specified for the country's five-year plan or annual budget.

Verify relevance

79. The assessment of the adequacy of the managerial process could include investigating whether the process has been spelled

Assess adequacy

out sufficiently to ensure the application of the whole range of managerial activities required to implement the national strategy for health for all. Has the process been adapted to the capacity of those who have to apply it? Is it clear to them how they should apply it? Have guidelines and accompanying training material been prepared, and are people being trained in their use? Are all important disciplines, areas and authorities adequately participating? Have appropriate permanent mechanisms been established, including community involvement at local, intermediate and central levels?

Review progress

80. The review of the progress of the managerial process could include considering whether it has developed and is being applied at the pace required, whether it is being applied as conceived, and whether it is being used throughout the whole country, throughout certain parts of the country only, or for specific programmes, services and institutions.

Assess efficiency

81. To assess the efficiency of the managerial process it is necessary to consider whether it could be carried out more economically and in a shorter time. This includes assessing whether the process could be carried out with fewer people, with less skilled people, and with greater community involvement.

Assess effectiveness

82. The effectiveness of the managerial process has to be assessed in the final analysis from its results. For example, has the process given rise to clear health policies in support of health for all by the year 2000, to a well-defined national strategy to give effect to these policies, and to appropriate plans of action with adequate budgets to implement the strategy? Have priority programmes been adequately formulated, and have the services and institutions for delivering these programmes been properly designed? Have the programmes been properly integrated into the general health system, starting with primary health care and continuing through the subsequent levels of the health system as required? Are programmes being efficiently implemented,

and are the services and institutions for delivering them being efficiently run?

83. Has evaluation been properly integrated into the various components of the managerial process, in practice as well as in theory? Has this led to modifications in programmes, services and institutions, and to reprogramming if necessary? Is the information support adequate in that information requirements have been carefully identified, the information required has been forthcoming, and the data collection and analysis have been carried out in the most economical way?

84. In the light of the above, draw conclusions and formulate proposals for future action, by indicating how far the managerial process is relevant to the country's managerial process for socio-economic development in general, and suggest ways of increasing this relevance if necessary. Judge whether the process is clear, well understood by those who have to apply it, and properly applied; and if not, whether this is due to lack of the right kind of people, guidelines, training, funds, or appropriate mechanisms. Indicate corrections required, for example, with regard to the people applying the process; mechanisms for ensuring its proper development and application; training; the manner of application; and the pace and location of application. Suggest ways of improving efficiency and, if the process is not sufficiently effective in producing results, indicate the aspects that are in need of improvement as well as ways of bringing about such improvements.

Draw conclusions and formulate proposals for future action

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